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APPLICANT: DAMIAN SACCOCIO

SHARING THE PERSONAL INFORMATION OF A NETWORK USER WITH THE RESOURCES ACCESSED BY THAT NETWORK USER

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RELATED APPLICATIONS

This application is related to U.S. Provisional Application No. 60/160,874, filed October 22, 1999 and entitled "Sharing A User's Personal Information," which application is incorporated by reference in its entirety.

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TECHNICAL FIELD

This application relates to sharing a user's personal information -- for example, personal preference information -- with a third party in a networked computing environment.

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BACKGROUND

5 The computer system 100 illustrated in Fig. 1 represents a typical hardware setup for executing software that allows users to perform tasks such as communicating with other computer users, accessing various computer resources, and viewing, creating, or otherwise manipulating electronic content -- that is, any combination of text, images, movies, music or other sound, animations, 3D virtual worlds, and links to other objects. The system includes
20 various input/output (I/O) devices (mouse 103, keyboard 105, display 107) and a general purpose computer 100 having a central processor unit (CPU) 121, an I/O unit 117, and a memory 109 that stores data and various programs such as an operating system 111, and one or more application programs 113. The computer system 100 also typically includes some
25 sort of communications card or device 123 (e.g., a modem or network adapter) for exchanging data with a network 127 via a communications link 125 (e.g., a telephone line).

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As shown in Fig. 2, a user of a computer system can access electronic content or other resources either stored locally at the user's own client system 202 (for example, a personal or laptop computer) or remotely at one or more server systems 200. An example of a server system is a host computer that provides subscribers with online computer services such as e-mail, e-commerce, chat rooms, Internet access, electronic newspapers and magazines, etc. Users of a host computer's online services typically communicate with one or more central servers systems 200 through client software executing on their respective client systems 202.

In practice, a server system 200 typically will not be a single monolithic entity but rather will be a network of interconnected server computers, possibly physically dispersed from each other, each dedicated to its own set of duties an/or to a particular geographic region. In such a case, the individual servers are connected by a network of communication links, in known fashion.

A "browser" is an example of client software that enables users to access and view electronic content stored either locally or remotely, such as in a network environment (local area network (LAN), intranet, and wide area network (WAN) such as the Internet). A browser typically is used for displaying documents described in Hypertext Markup Language (HTML) and stored on servers connected to a network, e.g., the Internet. Technically, a web browser is a client program that uses the Hypertext Transfer Protocol (HTTP) to make requests of web servers throughout the Internet on behalf of the browser user. A web server contains, in addition to the HTML and other files it can serve, an HTTP server daemon, which is a program designed to wait for HTTP requests and handle those requests when received.

Fig. 3 is a screenshot of a browser application 300 (Netscape Navigator) displaying a typical HTML document, or web page 302. As shown therein, a single web page 302 may be

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composed of several different files potentially of different data types 304 (for example, text, graphics, images, virtual worlds, sounds, movies, etc.). In addition, a web page can include links 306 pointing to other resources (for example, web pages or individual files) available on the network. Links 306 can take virtually any visual form, for example, they can appear either as a text string or as a graphical image or a combination thereof. Each link 306 has an associated URL pointing to a location on the network. When a user "clicks on" or otherwise selects a displayed link 306, the browser automatically will retrieve a web page or other resource corresponding to the link's associated URL and display it to, or execute it for, the user.

A user instructs a browser to access an HTML document, or webpage, by specifying a network address, or Uniform Resource Locator (URL), at which a desired document resides. URLs are defined in Internet standard RFC 1738 to include an indication of the protocol to be used and the location of a resource on a web server. In response, the browser contacts the corresponding server hosting the requested webpage, retrieves the one or more files that make up the webpage, and then displays the webpage in a window on the user's computer screen.

Web pages typically are transported using the HyperText Transfer Protocol (HTTP) as defined in Internet standard RFC 2068. HTTP is a set of rules for exchanging files (text, graphic images, sound, video, and other multimedia files) on the World Wide Web. Relative to the Transmission Control Protocol/Internet Protocol (TCP/IP) suite of protocols (which are the basis for information exchange on the Internet), HTTP is an application layer protocol.

When a user of a web browser sends an HTTP request by typing in a URL or clicking on a hypertext link, the browser builds an HTTP request and sends it to the address indicated by the URL. The HTTP server daemon in the destination server machine receives the request

Sub A7 and, after any necessary processing, the requested file is returned. The response is sent back to the browser where it can be displayed to the user. The HTTP protocol response includes various codes detailing the result of the request. For example, return code 404 indicates that the information requested was not found. For transactions requiring security, the HTTP connection can be secured with encryption. This variant is known as Secure HTTP (HTTPS) or Secure Socket Layer (SSL).

HTTPS (Secure Hypertext Transfer Protocol) is a web protocol developed by Netscape Inc. of Mountain View, California and implemented in several browsers. The HTTPS protocol encrypts and decrypts user page requests as well as the pages that are returned by the web server. HTTPS uses Netscape's Secure Socket Layer (SSL) as a sublayer under its regular HTTP application layer. HTTPS uses port 443 instead of HTTP port 80 in its interactions with the lower layer, TCP/IP. SSL uses a key size of a predetermined number of bits (typically between 40 and 128) for the RC4 stream encryption algorithm, which is considered a minimal degree of encryption for commercial exchange.

When visiting an electronic commerce merchant, a user typically is presented with a web page order form URL that starts with "https://", indicating the use of the HTTPS protocol. When sending the response, the browser will use the HTTPS layer for encryption. The acknowledgement received from the server also will travel in encrypted form using HTTPS, and will be decrypted by the browser's HTTPS layer.

HTTPS and SSL support the use of X.509 digital certificates from the server so that, if necessary, a user can authenticate (i.e., confirm the identity of) the sender. SSL is an open, nonproprietary protocol that Netscape has proposed as a standard to the World Wide Web Consortium (W3C). HTTPS is not to be confused with SHTTP, a security-enhanced version of HTTP developed and proposed as a standard by EIT.

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A digital certificate is an electronic token that establishes the credentials of a party doing business or other transactions on the web. Certificates are issued by a certification authority (CA). Typically, certificates contain a party's name, a serial number, expiration dates, a copy of the certificate holder's public key (used for encrypting and decrypting messages and digital signatures), and the digital signature of the certificate-issuing authority so that a recipient can verify that the certificate is real. Some digital certificates conform to a standard, X.509. Digital certificates can be kept in registries so authenticated users can look up other users' public keys.

HTTP also includes a mechanism referred to as a "cookie," which is used for maintaining client side persistent data. A cookie is a token, for example, a special text file, that a web site stores on a user's hard disk so that the web site can remember something about a user at a later time. Typically, a cookie records a user's preferences when using a particular site. Under HTTP, each request for a web page is independent of all previous requests. For this reason, a web page server has no memory of what pages it has sent to a user previously or anything about that user's previous visits. The cookie mechanism allows the server to store its own file on the user's own computer. The file is typically stored in a subdirectory of the directory used to install the browser software. The cookie subdirectory will contain cookie files for each web site visited by the user that uses cookies. Cookies are commonly used to keep track of which banner ads a user already has encountered. This allows web sites to rotate the banner ads sent and thereby minimize repetition as the user browses through multiple pages on a site. Cookies also can be used to customize web pages based on a user's browser type or other information provided to the web site. Web users must agree to let cookies be saved on their computers by configuring their browsers to accept cookies.

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Consumers can buy and sell products and services shown on web pages via electronic commerce ("e-commerce") transactions. To enable these transactions, a consumer and merchant must exchange personal and financial information concerning the online transaction, such as their credit card, billing address and shipping address. Conventional payment systems associated with many Internet commerce sites therefore require customers to type their credit card and mailing information into an HTML form.

Figs. 4A and 4B show an example of an e-commerce form 400. The information from the form 400 typically includes name 405, shipping address 410, billing address 415, and credit card number 420. This information is submitted to the merchant, who then uses the information to complete the transaction using various known fulfillment and delivery mechanisms.

Navigating and completing these forms involves a great deal of repetition and associated inconvenience to users when providing name, shipping address, billing address, and credit card data to merchants. Completing electronic forms often is a tedious and error-prone process. Furthermore, using these payment systems, customers visiting several online stores must re-enter their payment/address information at each store where they make a purchase, many stores even requiring shoppers to re-enter their payment information on each subsequent visit.

To facilitate the process of filling out forms, "form fillers" have been developed. These applications automate the filling of forms encountered when visiting web sites. The form filler recognizes forms in HTML and records the data entered in the fields when the user fills out the form for the first time. Then, when similar fields show up in subsequent forms, the form filler can use the recorded data to automatically fill out these fields. An example of such a form filler is built into Microsoft Internet Explorer 5.0. Figs. 5A, 5B, and

Sub A7 5C show a form filler application built into a browser automatically filling out the fields in an e-commerce form. Some form fillers further allow the user to maintain several "identities" to help protect privacy. Each identity keeps track of a separate set of form data that will be used to fill in new forms.

5 A similar but more sophisticated approach to facilitating online transactions is the digital wallet. A digital wallet is a software application that allows the user to input shipping and billing data once and reuse this information at many different web sites to complete a purchase. Digital wallets that fill merchant forms or directly transfer data to merchants have been successfully built into browsers in several ways, including as helper applications to
10 browsers, stand-alone applications, and browser plug-ins.

Once the digital wallet is set up, the user can store, manipulate, and pay for Internet purchases with various types of payment instruments (e.g., credit cards or electronic cash).

15 Client-based personal electronic wallets have been developed to relieve this burden. Client-based wallets store e-commerce information for a particular user at the machine operated by that user. When that machine interfaces a merchant website through the internet, e-commerce information stored in the local wallet may be transferred to the merchant. However, because client-based wallets reside on the user machine, these wallets are subject to the limitations of the machine upon which they reside. For instance, security attacks on the user machine may be used to target the wallets residing thereon. In addition, limitations
20 on portability for the machine result in limitations for the wallet.

SUMMARY

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One or more of the following advantages may be provided. The techniques and methods described here may enable the user to drastically reduce the amount of work required to fill out forms on web pages. This may be accomplished in one or more of the following ways. First, multiple pages of content can be filled out without requiring the user to view each page. Presenting only those fields and forms that are not automatically completed minimizes the work for users. Users can be selectively queried for any merchant-specific missing fields, thus optimizing the form filling process. Users need not inspect each form and approve its contents. Further, merchants using the techniques and methods described here may be able to provide information that is tailored and customized for the user, thus increasing the usefulness of the merchant's content to the user.

Other advantages for the user include ease of use in that no additional software is required. Further, as the user is not tied to a single computer, the other benefits described here can be realized from any computer capable of accessing the merchant's site, regardless of its location. In addition, the user gains some security, as the invention reduces the risks associated with data sniffing on the user's local area network and accessing storage devices attached to the user's computer.

For the merchant, the techniques and methods presented here enable merchant to access specific information about a customer's preferences and history. The merchant can use that information to customize the content presented. Merchants can track completed purchases in order to better handle service and information requests. Because the merchants can access the information using a well-defined protocol, merchants can easily modify forms without causing problems with many different types of software. Merchants can obtain demographic data for future targeted advertising. An intimate relationship between the merchant, the user, and the online service is fostered.

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These techniques and methods can be generalized and applied to any type of data (e.g., travel preferences), in addition to shipping, billing, and demographic data. In addition, they may be implemented using a system, method, software, or some combination thereof.

Details of one or more implementations are set forth in the accompanying drawings and the description below. Other features and advantages will be apparent from the description and drawings, and from the claims.

DESCRIPTION OF DRAWINGS

Fig. 1 shows a block diagram of a computer system.

Fig. 2 shows a typical network-computing environment.

Fig. 3 shows a browser application displaying a typical web page.

Fig. 4A shows a browser displaying an e-commerce form.

Fig. 4B shows the second page of the e-commerce form of Fig. 4A.

Fig. 5A shows exemplary results of using a form filler application.

Fig. 5B shows the second page of exemplary results of Fig. 5A.

Fig. 5C shows the third page of exemplary results of Fig. 5A.

Fig. 6 is a host-to-host architecture for sharing e-commerce transaction information.

Fig. 7A shows an authentication process.

Fig. 7B shows the process for requesting purchase information.

Fig. 7C shows the process for requesting credit card numbers.

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Fig. 8 is a flowchart of the typical sequence of screens displayed to users.

Fig. 9 is a screenshot of a merchant's product ordering page.

Fig. 10 is a screenshot of the framework authentication page.

Fig. 11A is a screenshot of the framework registration page.

5 Fig. 11B is the second page of the screenshot of Fig. 12A.

Fig. 12 is a screenshot of the merchant's order confirmation page.

Fig. 13 is a screenshot of the framework edit preferences page.

Fig. 14 is a screenshot of the framework edit credit cards page.

Fig. 15 is a screenshot of the framework edit addresses page.

Fig. 16 is a screenshot of the framework change security page.

Fig. 17 is a screenshot of the framework delete preferences page.

Fig. 18 is a screenshot of the framework customer service page.

Fig. 19 is a screenshot of the merchant's choose addresses page.

Fig. 20 is a screenshot of the merchant's order information page.

15 Like reference symbols in the various drawings may indicate like elements.

DETAILED DESCRIPTION

20 Quick checkout (QC) is a host-based system for sharing personal information of a network user with the resources accessed by that network user. QC generally involves either

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or both of two data stores, referred to as passport and wallet. Passport and wallet are host-based collections of routinely requested personal billing, shipping and demographics information (hereinafter "personal information"). They may be maintained independently or collectively. A user with a populated passport or wallet may choose to pass selected information to web sites, automatically or with very little effort, to enable an enhanced browsing experience or to assist in the completion of an online transaction.

For instance, when merchants offer QC as a payment option and the consumer elects to invoke QC, the merchant simply passes the order information to a pre-determined SSL-enabled QC form that is then displayed to the consumer. Payment information and shipping address are sent from the QC database to the QC form, and the form is confirmed, rejected or modified by the consumer. In this manner, the consumer need not redundantly enter payment information for each transaction or each merchant. Rather, they may rely on the wallet for this information, merely confirming its accuracy. As will be explained in greater detail below, when the wallet includes several options for payment, shipping, etc., the consumer may establish default information, and has the ability to select desired information from among that stored.

This host-based system facilitates seamless integration with other merchant services as well as the surrounding wallet/passport provider environment. Because the wallet and passport are host-based, they are inherently portable, updateable, secure and simple to setup and use.

QC can be used to share many different pieces of a user's personal information, before and during an e-commerce transaction. For instance, using QC, selected user information may be shared with merchant servers upon user's access to their web sites or later when performing an e-commerce transaction. More specifically, upon access to a

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merchant's web site, it is possible to share personal information to enable the merchant to personalize the content and services provided to the user. In this sense, QC can share virtually any other type of personal information, such as travel preferences, demographic information, food choices, and medical information. Thereafter, upon checkout, it is possible to share personal information of a more specific nature, generally concerning e-commerce information. For instance, commercial information such as user name, address, and credit card information can be shared when appropriate to further e-commerce transactions. Each user's information is stored in a "profile" that can be updated frequently. This information can be stored in any proprietary or commercially available relational or object database management system (DBMS), such as provided by Oracle, Inc. or Informix, Inc.

Fig. 6 shows one potential architecture of the framework, known as a "host-to-host" architecture. This architecture leaves the client computer 601 unmodified. The client computer 601, network host 602, and the preferences server 603 can communicate with each other to exchange user preferences information efficiently with a minimum of user interaction. Once the preferences server 603 authenticates the user, the network host 602 can directly communicate with the preferences server 603.

HTTPS is generally used as a transport for requests and responses; however, other protocols could also be used as transport mechanisms. Input parameters in requests and return values must be URL-encoded, to ensure that nonstandard characters are properly transmitted over the Internet. Furthermore, return codes from the requests may be used to verify their success.

Although the framework does not require a fixed sequence of requests from network hosts, communications between the user, the merchant, and the framework typically follow a particular pattern, illustrated in Figs. 7 and 7A, 7B, and 7C. The basic pattern is to

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 authenticate the user 710, request purchase information 720, request payment information 730, and finally to place the order 740. Each of these steps is described further below with respect to Figs. 7A-7C, which shows client computer 701, merchant web server 702, preferences server 703, preferences database 704 and network 705.

5 Fig. 7A shows the exchange of messages between the user, merchant, and the framework server during the authentication step 710. First, in step 710a, the merchant web server 702 provides a browser at client computer 701 access to its web page. The user is able to view the web page and select a set of products or services offered by the merchant, and thereafter may invoke "QuickCheckout" to proceed with an e-commerce purchase. When QuickCheckout is invoked 710a, an authentication request 710b is sent to the preferences server 703 for authentication. After the user enters an authorized username and password, a session identifier is generated 710c and returned by the preferences server 703, and the user's browser 701 is again directed to a web page on the merchant server 702. The session identifier is then sent 710d to the merchant, e.g., in the form of a cookie. For authentication throughout the remainder of the session, this session identifier will be sent with each communication by the merchant server 702 to the preferences server 703 during the session.

Fig. 7B shows the exchange of messages that occurs while getting purchase information to the merchant server 702, according to step 720. In step 720a, immediately after receiving an authentication confirmation from step 710, the merchant server 702 sends the session identifier with a request sent to the preferences server 703 for information about the user. The merchant server 702 also sends an X.509 SSL server certificate and a set of merchant preferences in the authentication request of step 720a. This certificate is used by the preferences server 703 to verify the identity of the merchant server 702 initiating the request for information. The preferences requested by the merchant server 702 of the

Sub A7 preferences server 703 will be used to tailor later content and services provided by the merchant server 702 to the client computer 701.

5 In step 720b, preferences information about the user is returned by the preferences server 703 to the merchant server 702. In step 720c, the information is formatted into a web page requesting confirmation of the information from the user at client computer 701. At this stage, only a portion of any previously entered credit card information is returned for security purposes, the returned information providing enough information for the user to confirm and/or edit the user information at this stage.

Referring to Fig. 7C, the process 730 of obtaining payment information is described. At step 730a, once the preferences information is confirmed by the user, the merchant server 702 sends the session identifier with a request for full payment information to the preferences server 702. The user's full credit card information is then returned to the merchant server 702 in step 730b. If the merchant server 702 does not receive the information, it 702 can check the HTTP return status code and take appropriate action. Otherwise, once payment information is received by the merchant server 702, the transaction 853 may be processed with the credit card company in step 730c, and wait for authorization. The preferences server 703 may also process the payment information with the credit card company.

20 Finally, in step 740, the results of this transaction are sent to preferences server 703 for customer service, record keeping, and order tracking purposes. These results are stored in the database for use in future transactions. The merchant can check the HTTP return status code from the preferences server 703 and take appropriate action if a failure occurs.

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The flowchart of Fig. 8 shows primary paths involved in a typical transaction. The process also includes appropriate error handling and alternative entry points when necessary. The sequence of screens from the user's perspective is shown in Figs. 9-20.

The first step 901 in the process of Fig. 8 is for the user to browse the merchant's site and select some items for purchase. Fig. 9 shows such a screen with some products 1001 selected for purchase. From this page, the user clicks the "AOL Quick Checkout" button 1002. This button initiates the authentication request described above.

The next step 902 in the process of Fig. 8 is to show the user the authentication page from the AOL site. This page is shown in Fig. 10. If the user has an AOL account, he enters his screen name 1101 and password 1102, then clicks on the "OK" button 1103. If the user does not have an AOL account, then the user can register by clicking on the "Signup Now!" button 1104. The registration step 903 in the process of Fig. 8 involves filling out a form, shown in Figs. 11A and 11B. The form contains credit card information 1201, shipping information 1202, and account information 1203. After entering the required information, the user can register by clicking the "OK" button 1204.

Once the user has either successfully authenticated or registered, the next step 904 in the process of Fig. 8 is to show the user a web page allowing him to review the order. Fig. 12 shows how this page details the order 1301 and shows the default transaction information 1302 provided by the framework server to the merchant. Only the last four digits of any credit card number 1303 are provided at this stage. From this screen, the user can choose shipping addresses by clicking on the "Choose Shipping Addresses" button 1304. The user can also choose to edit the transaction information by clicking on the "Edit Information" button 1305. When the user is satisfied with the addresses and transaction information, he can click on the "Complete AOL Quick Checkout" button 1306 to confirm the transaction.

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By confirming the transaction, the user is authorizing the merchant to complete the transaction with the credit card company using the information displayed.

If the user chooses to edit transaction information, the next step 905 in the process of Fig. 8 is to show the user a set of edit screens. The first such screen is shown in Fig. 13 and allows the user to edit credit cards 1401, edit shipping addresses 1402, change security information 1403, delete AOL Quick Checkout settings 1404, and request customer service 1405. Once the user makes a selection, the appropriate screen is displayed.

If in step 905 the user chooses to edit credit cards, the next step 906 in the process of Fig. 9 is to display the screen shown in Fig. 14. This screen allows users to select a credit card for use in the current transaction by selecting one of their currently defined credit cards 1501 and clicking the "Use This Card" button 1502. Users can also edit a credit card's information by clicking the "Edit This Card" button 1503. To edit a card or add information about a new credit card, the user can fill in the fields in the lower portion of the screen 1504. When the user is finished editing, he can click the "Add This Card" button 1505 to add the information to their profile.

If in step 905 the user chooses to edit addresses, the process is very similar to that for editing credit cards. The next step 907 in the process of Fig. 9 is to display the screen shown in Fig. 16. This screen allows users to select a shipping address for use in the current transaction by selecting one of the currently defined shipping addresses 1601 and clicking the "Use This Address" button 1602. Users can also edit an address by clicking the "Edit This Address" button 1603. To edit an address or add a new address, the user can fill in the fields in the lower portion of the screen 1604. When the user is done editing, he can click the "Add This Address" button 1605 to add the information to the profile.

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If in step 905 of Fig. 8 the user chooses to change security information, the next step 908 in the process of Fig. 8 is to display the screen shown in Fig. 16. This screen allows a user to enter 1701 and confirm 1702 a new password by typing it into a form. A user can also change the email address 1703 associated with his profile. When the user is done editing, he can click the "OK" button to confirm the changes and continue.

If in step 905 of Fig. 8 the user chooses to delete AOL Quick Checkout settings, the next step 909 in the process of Fig. 8 is to display the screen shown in Fig. 17. This screen asks a user to confirm that he wants to delete all of his credit card and shipping address information stored in the profile. A user can confirm this desire by clicking on the "Yes" button 1801.

If in step 905 of Fig. 8 the user requests customer service, the next step 910 in the process of Fig. 8 is to display the screen shown in Fig. 18. This screen displays customer service information 1901 for all the companies associated with the AOL Quick Checkout service. This screen also offers additional information about the AOL Quick Checkout service 1902.

If the user in step 904 of Fig. 8 decides to choose addresses instead of editing preferences, the next step 911 in the process of Fig. 8 is to display the screen shown in Fig. 19. This screen shows the products 2001 selected by the user for purchase. The user can assign one of the addresses 2003 to each product by selecting the appropriate number in the pulldown menu 2002. Once the user has finished selecting addresses, he can finalize his choices by clicking on the "Use These Addresses" button 2004. In addition, the user can edit addresses, as discussed above in step 907 of Fig. 8, by clicking the "Edit Addresses" button 2005.

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If the user in step 904 of Fig. 8 is satisfied with the transaction selections, and has clicked the button 1306 to complete the transaction, the next step 912 in the process of Fig. 8 is to display a final page verifying that the transaction has been completed. This screen, as shown in Fig. 20, displays the transaction information 2101 that was used by the merchant to complete the credit card purchase. The display may include a confirmation string 2102 or order identification string 2103 for record keeping purposes.

Fig. 21 shows an implementation as part of the AOL infrastructure. The figure shows the host-to-host architecture, as described above, with the addition of a proxy 2202. The proxy acts as an intermediary for all traffic between the host service computers and the Internet. The proxy performs load balancing by switching connections to the least utilized hardware to ensure that a high degree of performance is maintained. The proxy also contains a list of hosts that can be redirected to internal AOL sites. The internal sites provide AOL users with a more consistent look and feel. The internal sites can also be more tightly integrated with the AOL system because they are under AOL control.

In another implementation, as users select all of the items they wish to purchase from a particular merchant, the merchant collects and stores information about the purchase order, designated with an order identifier that is used to unify the order information. The order information is typically presented to the consumer in a shopping cart upon request or at checkout. Using this order information, the consumer can confirm the contents of their shopping cart by invocation of QC or otherwise, as the order identifier ties any subsequent QC information to the order information stored by the merchant.

Then, when the consumer launches QC using an icon at the merchant website, the merchant authenticates the consumer as a QC user. To do so, the merchant directs users to the AQC aolqc_auth url for authentication. If the GET to this url returns successfully, the

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 merchant can be assured that the user has been appropriately identified and "logged in" as an AQC member. For example, the GET returns with a session identifier (aolqc_session_id) which serves as a key to the consumer account. Thereafter, the session id is passed with virtually every backend call made by the merchant thereafter (e.g., to retrieve billing information for the customer, to enable editing by the customer). After the consumer is authenticated once by a merchant, they will not be redirected back to the authentication page until they have logged off of the AOL service.

If authenticated, payment and shipping information is collected from QC. Preferably, the merchant makes a host-to-host call to fetch a "pretty print" user-displayable version of the user's default billing and shipping information from the QC, which version does not include all of the information. The merchant then automatically produces a form that includes order id and that is posted to <https://payment.aol.com/placeorder>. For instance, a standard form might include the parameters listed in Appendix A (see parameters spanning pp 5-6 of AOL QC Merchant Connectivity Specification filed with provisional application number 60/160,874 filed October 22, 1999, which is incorporated by reference in its entirety). Using the order_allow_multi_shipto field of the placeholder form, it is possible for a merchant to enable designation of different shipping destinations for different aspects of the order (e.g., per unit or per item). Similarly, other fields may be duplicated to provide flexibility, as needed.

In response to the placeorder form, available QC information is returned from the wallet and is posted at the merchant. Default QC information may be automatically selected to eliminate the need for additional user interaction (unless editing is necessary). Alternatively, the consumer may be required to select among available QC information (e.g., credit card, shipping address information). In either case, a subset of the sensitive QC

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information from the wallet is provided to the merchant in response to the placeorder request.

This subset includes enough for consumer to confirm/select, but intentionally omits some information to avoid possible security problems (trojan horses, etc). The selected subset of QC info is posted by QC host to the merchant site at the

5 https://payment.aol.com/order_target_url page (for future use in creating a confirmation page combining order and QC information). Fields from an exemplary form are listed on pgs. 6-7 of AOL QC Merchant Connectivity Specification, which was filed with provisional application number 60/160,874 filed October 22, 1999, which is incorporated by reference in its entirety). If the merchant allows multiple shipping destinations for aspects of a single order, and the consumer has designated multiple destinations in the information provided by the merchant to the host, multiple posts may be made by the host to the https://payment.aol.com/order_target_url page, each post having the same order id number but different information where appropriate to accomplish the consumer order.

After the consumer is redirected to the merchant site, the merchant provides an order confirmation page displaying the order and payment data. Specifically, the merchant generates a form that displays the selected QC info and that queries the consumer to confirm the purchase. The confirmation page posts to a designated location known to wallet host, e.g., <https://payment.aol.com/confirmorder>. Fields from an exemplary form are listed in Appendix C (see list of parameters listed on p8 of AOL QC Merchant Connectivity Specification). If the merchant allows multiple shipping destinations for aspects of a single order, the consumer has designated multiple destinations in the information provided by the merchant to the host, and multiple posts are made by the host to the https://payment.aol.com/order_target_url page with the same order id number, the merchant will generate a confirmation page for each part of the order. Generally, information is

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 filtered before being returning to the merchant for confirmation (to prevent merchant from obtaining enough financial info to complete transaction until after the complete transaction is confirmed by consumer). The merchant then displays screen requesting confirmation of shopping cart to selected credit card (with limited information being shown about credit card).

After the order has been confirmed, three processes are performed:

1. the customer is redirected to the http://payment.aol.com/order_return_url page which displays a message from the merchant thanking the customer for their order
2. the merchant receives complete credit card information from the host along with other order information that is posted to target url specified in the order_target_url field of the initial post generated by the merchant. This information is used by the merchant to deliver the ordered goods. An exemplary format for the order information is shown by appendix D (see pp8-10 of AOL QC Merchant Connectivity Specification).
3. the merchant pushes order data to a URL accessible to the wallet host for customer service, record keeping and order tracking purposes.

Using this system, and the ability to store and share personal information, it is possible to provide enhanced functionality such as parental controls, AOL rewards, gift reminders, purchase history, and keyword billing.

Furthermore, integration with a service provider enabling several screen-names for a single account allows the user to designate separate wallets/passports for different members on an account, each drawing on some common and some independent information. For instance, several family members having different screen-names may each maintain independent wallets with separate e-commerce information while being provided access to a shared wallet having shared e-commerce information. In this manner, selected credit cards

Sub A7
or e-commerce information may be made accessible to some or all screen-names without sharing all credit cards or other e-commerce information. Furthermore, when combined with the passport functionality, this model allows information to be maintained and communicated for each independent screen-name.

5 The techniques, methods, and systems described here may find applicability in any computing or processing environment in which electronic content may be viewed, accessed, or otherwise manipulated. For instance, the concept of sharing e-commerce transaction information between hosts in a networked computing environment could be applied whenever those preferences are useful to a third party, such as an e-commerce merchant. One
10 such environment involves a computer system (e.g., a Microsoft Windows-based PC or Apple Macintosh) that is connected to the Internet.

15 Various implementations of the systems and techniques described here may be realized in digital electronic circuitry, or in computer hardware, firmware, software, or in combinations thereof. A system or other apparatus that uses one or more of the techniques and methods described here may be implemented as a computer-readable storage medium, configured with a computer program, where the storage medium so configured causes a computer system to operate on input and/or generate output in a specific and predefined manner. Such a computer system may include one or more programmable processors that receive data and instructions from, and transmit data and instructions to, a data storage
20 system, and suitable input and output devices.

Each computer program may be implemented in a high-level procedural or object-oriented programming language, or in assembly or machine language if desired; and in any case, the language may be a compiled or interpreted language. Suitable processors include, by way of example, both general and special purpose microprocessors.

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Generally, a processor will receive instructions and data from a read-only memory and/or a random access memory. Storage devices suitable for tangibly embodying computer instructions and data include all forms of non-volatile memory, including semiconductor memory devices, such as EPROM, EEPROM, and flash memory devices; magnetic disks
5 such as internal hard disks and removable disks; magneto-optical disks; and CD-ROM disks.

Any of the foregoing may be supplemented by, or implemented in, specially designed ASICs (application specific integrated circuits).

A number of implementations have been described. Nevertheless, it will be understood that various modifications may be made without departing from the spirit and scope of the invention. For example, advantageous results still could be achieved if steps of the disclosed techniques were performed in a different order and/or if components in the disclosed systems were combined in a different manner and/or replaced or supplemented by other components.

In addition, the systems, methods, and techniques described here may be implemented in digital electronic circuitry, or in computer hardware, firmware, software, or in combinations of them. Apparatus embodying these techniques may include appropriate input and output devices, a computer processor, and a computer program product tangibly embodied in a machine-readable storage device for execution by a programmable processor. A process embodying these techniques may be performed by a programmable processor
15 executing a program of instructions to perform desired functions by operating on input data and generating appropriate output. The techniques may advantageously be implemented in one or more computer programs that are executable on a programmable system including at least one programmable processor coupled to receive data and instructions from, and to transmit data and instructions to, a data storage system, at least one input device, and at least
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one output device. Each computer program may be implemented in a high-level procedural or object-oriented programming language, or in assembly or machine language if desired; and in any case, the language may be a compiled or interpreted language. Suitable processors include, by way of example, both general and special purpose microprocessors.

5 Generally, a processor will receive instructions and data from a read-only memory and/or a random access memory. Storage devices suitable for tangibly embodying computer program instructions and data include all forms of non-volatile memory, including by way of example semiconductor memory devices, such as Erasable Programmable Read-Only Memory (EPROM), Electrically Erasable Programmable Read-Only Memory (EEPROM), and flash
10 memory devices; magnetic disks such as internal hard disks and removable disks; magneto-optical disks; and Compact Disc Read-Only Memory (CD-ROM disks). Any of the foregoing may be supplemented by, or incorporated in, specially-designed ASICs (application-specific integrated circuits).

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